

portions of the Gulf States, in the Mississippi Valley to Tennessee, and in the lower Colorado valley.

LIMITS OF FREEZING WEATHER.

The southern limit of freezing weather is shown on Chart V by a line traced over northern New England and from northern Lower Michigan to southern Minnesota and thence to southern New Mexico. The western limit of freezing weather is shown by this line continued northwestward to the Sierra Nevada Mountain range in eastern California, thence over central Oregon, and thence over the northern Rocky Mountain region.

RANGES OF TEMPERATURE.

The greatest daily range of temperature is shown in the table of miscellaneous meteorological data. The greatest monthly range of temperature, 72, was reported at Dodge City, Kans.; at Miles City, Mont., the monthly range was 70. From the Rocky Mountain region the monthly ranges decreased eastward to less than 40 at points along the immediate Atlantic coast, southeastward to 20 over extreme southern Florida and extreme southern Louisiana, and to less than 30 along the Texas coast, and westward to less than 30 along the immediate middle and north Pacific coasts.

PERIODS OF LOW TEMPERATURE.

The month opened with temperature below freezing in the middle and northern Rocky Mountain regions. During the 2d a decided fall in temperature occurred in the lower lake region and the upper Ohio valley, and on the 3d a fall in temperature of 10 to 20 was noted in the middle Atlantic

states. A cool wave advanced from the northeast slope of the Rocky Mountains to New England from the 9th to the 13th, attended by a fall in temperature of 10 to 20. On the 22d the temperature fell 20 to 40 from the Lake region to northwestern Texas. On the 23d a fall in temperature of 20 to 30 occurred in the Lake region and Ohio Valley, and on the 24th the temperature fell 10 to 20 in the middle Atlantic and New England states.

FROST.

The frost line extended to north parts of the south Atlantic and east Gulf states on the 4th, 17th, 18th, and 19th. Frost was reported in central Arkansas on the 2d, 3d, and 17th. On the 1st heavy frost injured fruit and vegetables about Dodge City, Kans. Heavy frost damaged tender plants on low ground about Montrose, Colo., on the 6th. Wheat and oats were injured about Stillwater, Okla., on the 14th. On the 18th heavy frost nipped fruit buds and blossoms at Meadow Valley, Cal., and heavy frost was reported at Green Hill, Ohio. Heavy frost was reported in Washoe, Carson, and Eagle valleys, Nev., on the 21st. On the 22d heavy frost killed vegetation on low ground about Tehachapi, Cal. On the 21st frost caused considerable damage in parts of Kansas and Nebraska. Tender vegetation about Vernonia, Oregon, was nipped by frost on the 24th. On the 25th heavy frost was reported at Newbridge, Oregon, and Bear Valley, S. Dak.; at Lander, Wyo., the temperature fell to 27. Heavy frost was reported at Salt Lake City, Utah, on the 26th. Grape blossoms on low ground about Sonoma, Cal., were injured by frost on the 29th.

PRECIPITATION (expressed in inches and hundredths).

The distribution of precipitation over the United States and Canada for May, 1893, as determined from reports of more than 2,000 stations, is exhibited on Chart III. In the table of miscellaneous meteorological data the total precipitation and the departure from the normal are given for regular stations of the Weather Bureau. The figures opposite the names of the geographical districts in the columns for precipitation and departure from the normal show, respectively, the averages for the several districts. The normal for any district may be found by adding the departure to the current mean when the precipitation is below the normal and subtracting when above.

The normal precipitation for May is greatest in areas in eastern Texas and western Missouri, where it exceeds 6.00. It exceeds 4.00 over the greater part of the region extending from the middle and lower Missouri valleys to the middle and west coasts of the Gulf of Mexico, generally in Tennessee and North Carolina, and along the South Carolina and east Florida coasts. The normal amount is also in excess of 4.00 at points on the north Pacific coast, and in adjoining parts of southwestern Montana and northwestern Wyoming. In districts east of the Rocky Mountains other than those named the normal precipitation generally ranges from 2.00 to 4.00. Over the greater part of the plateau region and on the Pacific coast south of the 40th parallel the precipitation for May is usually less than 1.00, and over the west parts of the middle and southern plateau regions and southern California it is less than 0.50.

In May, 1893, the greatest monthly precipitation reported was 19.88 at Lonoke, Ark. The monthly precipitation exceeded 10.00 generally over Arkansas, central and extreme southwestern Tennessee, and in areas in the interior of the middle Gulf states. The monthly rainfall was in excess of

6.00 near the middle New England coast, in an area extending from Virginia over Missouri, Arkansas, and eastern Texas, and on the extreme north Pacific coast. In California south of the Sacramento Valley, and thence over the greater part of Nevada and southwestern Utah, the monthly precipitation was less than 0.25. Less than 1.00 fell generally over the middle and southern plateau regions, on the middle and south Pacific coasts, and in the region north of North Dakota and eastern Montana.

DEPARTURE FROM NORMAL PRECIPITATION.

More than the usual amount of precipitation was reported in the lower and middle Mississippi and Ohio valleys, the lower lake region, in the middle Atlantic and New England states (except in eastern Maine), over the southern plateau region, and from the north Pacific coast over the northeast slope of the Rocky Mountains; elsewhere the precipitation was deficient. The greatest excess in precipitation was noted in an area covering eastern Arkansas and adjoining parts of Tennessee and Mississippi, where the monthly amount was 6.00 to 8.00 greater than usual. In western Maine, northeastern Ohio, and northwestern Pennsylvania the monthly amount was 4.00 to 5.00 in excess of the May average. The greatest deficiency in precipitation was reported at Eastport, Me., over extreme southern Louisiana, at Dodge City, Kans., Des Moines, Iowa, and Yankton and Rapid City, S. Dak., where the monthly amount was 2.00 to 3.00 less than usual.

Considered by districts the average percentage of the normal in districts where the monthly precipitation was in excess was about as follows: southern plateau, 330; northern plateau, 176; Ohio Valley and Tennessee, 162; north Pacific coast, 147; middle Atlantic states, 140; New England, 138; lower lake region, 136; west Gulf states, 127; east Gulf states, 125; southeast slope of the Rocky Mountains, 123; and south Atlantic states, 110. In districts

where the precipitation was deficient the percentage of the normal was about as follows: south Pacific coast, 58; Key West, Fla., 65; middle-eastern slope of the Rocky Mountains, 67; middle plateau region, 72; middle Pacific coast, 73; Missouri Valley, 78; upper lake region, 82. On the northeast slope of the Rocky Mountains, in the extreme northwest, and in the upper Mississippi valley the monthly precipitation averaged about normal.

DEPARTURE FROM NORMAL PRECIPITATION.

The following table shows for certain stations, as reported by voluntary observers, (1) the average precipitation for May for a series of years; (2) the length of record during which the observations have been taken and from which the average has been computed; (3) the total precipitation for May, 1893; (4) the departure of the current month from the average; (5) and the extremes for May during the period of observation and the years of occurrence:

State and station.	(1) Average for the month of May.	(2) Length of record.	(3) Total for May, 1893.	(4) Departure from average.	(5) Extremes for May.			
					Greatest.		Least.	
					Am't.	Year.	Am't.	Year.
Arizona.	Inches.	Years.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Fort Apache	0.46	17	2.18	+ 1.72	2.18	1893	0.00	*
Fort Mohave	0.16	22	0.26	+ 0.10	1.20	1873	0.00	*
Whipple Barracks Arkansas.	0.59	22	0.88	+ 0.29	1.82	1877	0.00	*
Keesee Ferry	6.16	11	5.27	- 0.89	10.56	1882	1.97	1891
California.								
Fort Bidwell	1.36	22	1.66	+ 0.30	4.66	1877	0.40	1884
Riverside	0.42	12	0.00	- 0.42	1.99	1884	0.00	1886, 1893
Colorado.								
Las Animas	1.98	11	0.09	- 1.89	5.06	1882	0.09	1893
Florida.								
Merritts Island	3.98	15	2.45	- 1.53	11.58	1890	0.88	1886
Georgia.								
Foray	3.11	19	6.24	+ 3.13	7.31	1890	0.45	1877
Idaho.								
Boise Barracks	1.41	19	1.50	+ 0.09	3.51	1892	0.07	1881
Fort Sherman	1.68	10	3.75	+ 2.07	3.75	1893	0.66	1884
Indiana.								
Lafayette	4.95	13	3.03	- 1.92	8.79	1892	1.98	1891
Indian Territory.								
Fort Supply	3.71	14	1.43	- 2.28	7.84	1883	0.06	1886
Iowa.								
Cresco	3.50	21	2.79	- 0.71	7.89	1880	0.76	1874
Kansas.								
Independence	4.65	21	5.16	+ 0.51	10.64	1892	0.92	1879
Salina	4.10	10	.....	.....	8.92	1889	0.27	1888
Louisiana.								
Grand Coteau	4.94	10	8.08	+ 3.14	14.03	1884	0.21	1889
Maine.								
Orono	3.49	23	.....	.....	10.52	1890	1.25	1887
Maryland.								
Cumberland	3.23	21	4.37	+ 1.14	7.13	1890	0.30	1875
Michigan.								
Kalamazoo	4.24	17	4.42	+ 0.18	7.04	1892	1.44	1885
Missouri.								
Sedalia	5.02	14	7.09	+ 2.07	10.47	1892	0.97	1879
Montana.								
Fort Custer	2.04	12	7.29	+ 5.25	7.29	1893	0.47	1885
Nebraska.								
Fort Robinson	3.16	9	0.72	- 2.44	6.39	1888	0.72	1893
Genoa (near)	4.19	17	5.11	+ 0.92	7.80	1877	0.83	1880
Nevada.								
Browns	0.29	21	0.00	- 0.29	1.10	1887	0.00	*
Carson City	0.62	15	0.37	- 0.25	2.80	1891	0.04	1880
New Hampshire.								
Hanover	3.25	22	3.09	- 0.16	6.26	1892	0.81	1879
New Mexico.								
Fort Wingate	0.48	21	1.25	+ 0.77	3.00	1872	0.00	1879
New York.								
Cooperstown	3.53	22	6.74	+ 3.21	8.84	1890	0.36	1879
Plattisburg Barracks North Carolina.	2.56	22	3.26	+ 0.70	5.00	1890	0.18	1879
Oklahoma.								
Lenoir	4.75	21	5.90	+ 1.15	11.50	1873	1.60	1881, 1883
Pennsylvania.								
Fort Reno	4.21	10	1.88	- 2.33	9.33	1885	0.31	1886
Fort Sill	4.82	21	3.50	- 1.32	9.74	1880	0.07	1886
Oregon.								
Bandon	3.45	15	4.28	+ 0.83	7.79	1879	0.23	1890
Pennsylvania.								
Dyberry	3.13	20	6.21	+ 3.08	6.21	1893	0.36	1875
Grampian	4.33	21	5.47	+ 1.14	11.60	1889	1.29	1891
Wellboro	5.17	14	6.58	+ 1.41	9.36	1884	1.30	1891
South Carolina.								
Statesburg	3.61	12	3.91	+ 0.30	6.68	1888	1.24	1882
South Dakota.								
Fort Sully	2.57	22	4.00	+ 1.43	5.05	1874	0.36	1884
Texas.								
Austin	4.12	18	.....	.....	8.40	1885	T.	1886
Silver Falls	1.60	7	1.60	0.00	4.25	1887	0.01	1886
Utah.								
Terrace	0.40	21	0.00	- 0.40	1.20	1891	0.00	*

Departures from average precipitation—Continued.

State and station.	(1) Average for the month of May.	(2) Length of record.	(3) Total for May, 1893.	(4) Departure from average.	(5) Extremes for May.			
					Greatest.		Least.	
					Am't.	Year.	Am't.	Year.
Vermont.	Inches.	Years.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Strafford	3.44	20	2.58	- 0.86	7.60	1890	0.40	1877
Virginia.								
Dale Enterprise	5.41	13	5.63	+ 0.22	12.66	1886	1.06	1880
Washington.								
Fort Townsend	1.91	19	3.71	+ 1.80	7.81	1875	0.30	1891
West Virginia.								
Parkersburg	3.59	8	5.87	+ 2.28	5.87	1893	1.05	1885
Wisconsin.								
Embarra	4.77	22	.....	.....	9.65	1892	0.25	1891
Madison	3.73	22	2.27	- 1.46	6.98	1883, 1892	1.02	1877
Wyoming.								
Fort Washakie	2.71	10	1.89	- 0.82	5.77	1882	0.41	1887

* Frequently.

PRECIPITATION, JANUARY TO MAY.

For the period January 1 to May 31, 1893, inclusive, the precipitation averaged about normal in the middle Atlantic states, the Ohio Valley and Tennessee, the upper lake region, the Missouri Valley, on the northeast slope of the Rocky Mountains, and along the middle Pacific coast. Over the northern plateau region, and along the south Pacific coast the precipitation was three-tenths to four-tenths greater than usual, and in the lower lake region, the upper Mississippi valley, the extreme northwest, and the southern and middle plateau regions, it was one-tenth to two-tenths greater than usual. On the middle-eastern slope of the Rocky Mountains about one-half of the usual amount of precipitation was noted, and in the south Atlantic and Gulf states, at Key West, Fla., and on the southeast slope of the Rocky Mountains the precipitation was six-tenths to eight-tenths of the average amount for the period named.

YEARS OF GREATEST PRECIPITATION FOR MAY.

At Portland, Me., Dyberry, Pa., Parkersburg, W. Va., Cleveland, Ohio, Chattanooga and Memphis, Tenn., El Paso, Tex., Fort Apache, Ariz., Fort Custer and Helena, Mont., Fort Sherman, Idaho, and Spokane and Neah Bay, Wash., the precipitation for the current month was the greatest ever reported for May.

YEARS OF LEAST PRECIPITATION FOR MAY.

At Las Animas, Colo., and Fort Robinson, Nebr., the precipitation for the current month was the least ever reported for May.

The least precipitation for May occurred on the north Pacific coast in 1888; from east Texas and Louisiana northwestward to the northern plateau region in 1886; in the northern and eastern lake region in 1877; and from the lower Mississippi valley to the lower Missouri valley in 1874.

EXCESSIVE PRECIPITATION.

The following tables show, by states, the number of stations reporting monthly precipitation to equal or exceed 10.00; precipitation to equal or exceed 2.50 in 24 hours; and precipitation to equal or exceed 1.00 in 1 hour in May, 1893:

Monthly precipitation to equal or exceed 10.00.

State.	Number of stations.	State.	Number of stations.
Arkansas	24	Ohio	5
Alabama	6	Louisiana	3
Mississippi	8	Missouri	2
Tennessee	6	Kentucky	1

Precipitation to equal or exceed 2.50 in 24 hours.

State.	Number of stations.	Dates.	State.	Number of stations.	Dates.
Missouri	50	1, 25, 25-26, 26, 28, 30-31, 31.	Pennsylvania	10	3-4, 4, 16, 16-17.
Arkansas	24	6, 7, 14, 26-27, 26- 28, 27-28, 28, 29.	New York	8	3-4, 15-16, 31.
Louisiana	23	1, 1-2, 2, 2-3, 3, 3- 4, 9, 14, 14-15, 29.	Nebraska	6	10, 22, 30, 30-31.
Alabama	20	1, 2-2, 2-3, 3, 6, 6-7, 7-8, 8, 9, 28- 29, 31.	Florida	6	15, 15-16, 16-17.
Massachusetts	17	3-4, 4.	Kansas	6	25, 25-26, 31.
Mississippi	17	2, 2-3, 6, 6-7, 7, 11, 26-28, 27.	Virginia	5	2-3, 3, 3-4.
Ohio	16	1, 15-17, 16, 16-17, 16-18, 17, 17-18, 30-31.	South Dakota	4	21.
Connecticut	15	3-4, 4, 15-16, 16-17.	New Jersey	4	3-3-4.
Tennessee	14	2-3, 3, 26-27, 26-28, 27, 31.	Maryland	4	2-3, 3-4.
North Carolina	13	2-3, 3, 3-4, 27-28.	Georgia	3	6, 27, 28-29.
Texas	13	1, 6-7, 7, 7-8, 10- 11, 11-12, 14.	North Dakota	2	18-19.
Illinois	11	25-26.	Indiana	2	1.

*April 30, 1893.

†April 30-May 1, 1893.

Precipitation to equal or exceed 1.00 in 1 hour.

Alabama	6	2, 6, 8, 27.	Nebraska	2	30.
Mississippi	6	2, 6, 8, 14, 27, 31.	Pennsylvania	2	20, 23.
Texas	6	6, 10, 28.	Tennessee	2	27, 31.
Kansas	5	10, 25, 30.	Kentucky	1	5.
Georgia	5	8, 23, 25, 27, 28, 29.	Michigan	1	23.
Arkansas	4	6, 14, 30.	North Carolina	1	3.
Florida	4	9, 24, 25, 30.	South Carolina	1	2.
Missouri	4	4, 11, 26.	South Dakota	1	21.
Colorado	2	8, 30.	Virginia	1	2.
Indiana	2	26, 30.			

Table of excessive precipitation, May, 1893.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
<i>Alabama.</i>						
Brewton	Inches.	Inches.		Inches.	h. m.	
Do		2-50	9	1-25	1 00	2
Claiborne Landing		4-00	2	1-00	1 00	6
Do		2-50	6-7	2-00	2 00	2
Demopolis		2-95	2-3			
Florence b	10-28	3-30	31			
Fort Deposit		3-35	1-2			
Gadsden		2-52	28-29			
Greensboro	11-85	5-67	1			
Healing Springs	11-47	2-55	2			
Do		2-00	6			
Livingston b		2-52	1-2			
Maple Grove	10-80	2-01	28-29			
Marion						
Maysville		2-60	2			
Mobile		2-70	2-3	1-60	1 00	2
Montgomery				1-19	1 00	8
Mount Willing		5-31	1-2			
Newton				1-45	1 00	6
Oxanna		2-87	2-3			
Pushmataha	10-27	2-58	6			
Selma		2-78	6			
Union	13-95	2-70	3	1-10	1 00	27
Do		4-40	7-8			
Union Springs a		3-50	8			
Union Springs b	10-68					
Uniontown	10-58					
Warrior		2-90	1-2			
Do		2-88	28-29			
<i>Arkansas.</i>						
Arkadelphia	10-20					
Ashdown		10-36				
Bee Branch	11-59	6-25	27-28			
Brinkley	15-20	7-65	26-28			
Do		3-00	30-31			
Camden a	10-80	3-31	*			
Do		3-48	28			
Camden b		2-83	28			
Conway	11-32	3-98	27-28			
Do		3-96	30-31			
Dallas	10-00					
Dardanelle		13-25	4-95	31		
Fayetteville		10-96	4-97	30-31		
Forrest		15-44	6-70	26-28		
Do		4-60	30-31			
Fort Smith		2-66	27-28	2-02	0 50	6
Fulton	10-18	2-70	28			
Helena c	16-68	10-80	27-28			
Helena b	14-75	9-85	26-28			

Table of excessive precipitation—Continued.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.	
		Amt.	Day.	Amt.	Time.
<i>Arkansas—Continued.</i>					
Hot Springs	Inches.	Inches.		Inches.	h. m.
Do	10-10	2-75		7	
Jonesboro		2-65		28	
Keeses Ferry	10-03	3-81	30-31	1-83	1 00
Little Rock	13-25	5-37	26-28		
Do		2-78	30-31		
Lonoke	19-88	7-88	27-28		
Madding	10-08	4-25	30-31		
Do		2-50	6		
Mount Nebo	11-11	3-50	29-30	3-50	1 30
Osceola	15-16	3-60	26-27		
Do		7-04	31		
Prescott	10-07				
Russellville	11-46				
Searcy	10-77	3-55	27-28		
Stuttgart		2-92	26-27		
Washington b	11-00	3-42	30	3-42	3 30
Wiggs		2-50	7		
<i>Colorado.</i>					
Saint Cloud		3-50	30	1-00	1 00
Do				3-50	3 30
<i>Connecticut.</i>					
Canton		3-22	4		
Colchester		3-60	3-4		
Hartford b		2-80	3-4		
Lake Komoc		2-66	4		
Lebanon		3-10	3-4		
Do		2-93	16-17		
Middletown		2-70	4		
New Hartford b		2-70	3-4		
New Haven		3-10	3-4		
North Franklin		3-47	3-4		
Do		2-98	15-16		
Norwalk		3-26	3-4		
Stevenson		3-00	3-4		
Storrs		2-88	3-4		
Voluntown		2-77	3-4		
Wallingford		3-45	3-4		
West Simsbury		3-00	3-4		
<i>District of Columbia.</i>					
Washington		2-73	3-4		
<i>Florida.</i>					
Fort Meade		3-56	16		
Gainesville		2-75	16		
Homeland		3-30	16-17		
Jacksonville				1-70	0 51
Jupiter				1-15	0 15
Manatee		3-10	15-16		
Plant City				1-90	0 35
Do				1-70	0 40
Saint Andrews Bay		2-82	15		
Saint Francis Barracks		3-23	15-16		
Titusville		1-73	1 30		
<i>Georgia.</i>					
Alapaha		1-40	0 50		
Do		1-32	1 20		
Atlanta		1-17	1 00		
Fort Gaines		2-91	6		
Lumpkin				1-10	0 30
Macon b				1-10	1 00
Reynolds		2-80	27		
Thomasville				1-03	0 50
Whitesburg		2-78	28-29		
<i>Illinois.</i>					
Atwood		5-08	25-26		
Beardstown		3-75	25-26		
Carlinville		2-50	25-26		
Carlyle		2-54	25-26		
Greenville		3-35	25-26		
Griggsville		2-90	25-26		
Mascoutah		3-00	25-26		
Quincy		5-25	25-26		
Rushville		4-10	25-26		
Springfield		4-28	25-26		
White Hall		2-92	25-26		
<i>Indiana.</i>					
Connerville				1-23	1 00
Huntingburg		4-00	I		
Laconia				1-40	1 00
Marengo		3-00	I		
<i>Indian Territory.</i>					
Lehigh		2-75	27-28		
<i>Iowa.</i>					
Carroll		2-63	21-22		
Glenwood		3-48	10-11		
<i>Kansas.</i>					
Concordia				1-32	0 24
Independence				1-18	1 10
Leavenworth		2-73	25-26		
Manhattan a		2-70	25-26		
Manhattan b		2-58	25-26		
Mount Hope		2-84	25	2-25	1 00
Pauline		2-75	31		
Plainville				1-50	1 00
Waimego		3-60	25-26	1-10	1 00
<i>Kentucky.</i>					
Bowling Green		3-78	31		
Franklin		10-41	5-12	31	
Harrodsburg				1-25	0 45

Table of excessive precipitation—Continued.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
<i>Louisiana.</i>						
Abbeville.....		3.00	1			
Alexandria.....		2.80	7			
Baton Rouge.....	10.68	3.11	2			
Do.....		4.67	9			
Cameron.....		3.47	1			
Cheneyville.....	12.57	4.20	1			
Do.....		3.00	7			
Clinton.....		3.27	1			
Donaldsonville.....		2.96	14-15			
Farmerville.....		2.90	28			
Franklin.....		4.80	14-15			
Girard.....		2.90	*			
Grand Coteau.....		6.20	1			
Hamburg.....		2.56	14-15			
Hammond.....		3.29	1-2			
Do.....		3.03	14-15			
Lafayette.....		2.57	2			
Lake Charles.....		4.00	2			
Lake Providence.....	10.28	2.83	1			
Melville.....		2.67	2			
Opelousas.....		3.03	1-2			
Plain Dealing.....		3.00	14			
Do.....		3.20	29			
Plaquemine.....		3.35	1			
Rayne.....		2.55	1-2			
Shell Beach.....		3.40	1			
Wallace.....		2.85	9			
<i>Maine.</i>						
Lewiston.....		2.64	17			
Portland.....	3.00	13-14				
<i>Maryland.</i>						
Fallston.....		3.45	3-4			
Frederick.....		2.61	3-4			
Glyndon.....		3.59	3-4			
Leonardtown.....	2.57	2-3				
<i>Massachusetts.</i>						
Boston (W. B.).....		2.81	3-4			
Boston (V. O.).....		2.80	3-4			
Cambridge a.....		2.67	3-4			
Cambridge b.....		4.18	3-4			
Fitchburg a.....		3.93	3-4			
Fitchburg b.....		3.04	3-4			
Framingham.....		3.51	3-4			
Groton a.....		2.90	3-4			
Hingham.....		3.05	3-4			
Kendall Green.....		2.87	4			
Leeds.....		3.22	3-4			
Leominster.....		2.98	3-4			
Medford.....		2.81	4			
Wakefield.....		2.87	3-4			
Westboro.....		3.44	3-4			
Worcester a.....		4.18	3-4			
Worcester b.....		2.68	3-4			
<i>Michigan.</i>						
Berrien Springs a.....		2.50	11			
North Marshall.....			1-00	1 00	23	
<i>Mississippi.</i>						
Batesville.....	13.49	5.75	27	1.00	1 00	31
Brookhaven.....	11.28	2.60	2			
Corinth.....	10.11					
Crystal Springs.....		3.05	6			
Duck Hill.....			1.20	0 25	14	
Greenville a.....		2.77	6-7	0 17	0 45	6
Greenville b.....		2.87	6-7			
Haslehurst.....	13.61	4.02	2			
Holly Springs.....	11.96	6.10	26-28			
Jackson.....		3.00	2			
Macon.....		3.10	2-3	1.66	1 00	8
Meridian.....	10.24	2.73	2-3			
University.....	11.38	4.15	27			
Vicksburg.....		2.80	2-3			
Washington.....		2.73	2-3			
Water Valley.....	10.42		1-40	0 40	14	
Do.....		3.58	27	3.03	1 13	27
Waynesboro a.....		5.80	6			
Waynesboro b.....		4.50	6			
Woodville.....		2.70	7	1.50	1 10	2
<i>Missouri.</i>						
Bethany.....		3.10	25-26			
Big Piney.....		2.80	30-31			
Brunswick.....		3.60	25-26			
Dadeville.....	11.52	5.72	28			
Darksville.....		3.00	25-26			
Edge Hill.....		3.60	26			
Eldon.....		3.26	31			
Emma.....		3.20	26			
Farmererville.....		3.53	25-26			
Fayette.....		3.65	25-26			
Fulton.....		3.67	25-26			
Fox Creek.....		3.92	25-26			
Gallatin.....		3.07	25-26			
Glasgow.....		3.04	25-26			
Glenated.....		2.65	25-26			
Gordonville.....		2.53	31			
Hannibal.....		4.08	25-26			
Hastain.....		2.50	25			
Hermann.....		3.23	25-26			
Humansville.....		2.92	30-31			
Ironton.....		3.77	26	1.75	1 00	26
Langdon.....			1.25	0 30	4	

Table of excessive precipitation—Continued.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
<i>Missouri—Continued.</i>						
Lebanon.....		2.83			31	
Lexington.....		3.01			26	
Liberty.....		2.53		25-26		
Louisiana Bridge.....		3.22		25-26		
Malden.....	12.10	2.70	1			
Do.....		4.50		26		
Marble Hill.....					1.06	1 00
Do.....					1.50	1 00
Marceline.....		3.30		25-26		
Marshall.....		3.06		25-26		
Mexico.....		5.52		25-26		
Miami.....		2.54		25-26		
Mine La Motte.....		2.70		25-26		
New Boston.....		5.75		25-26		
New Hartford.....		5.11		25-26		
New Haven.....		3.50		25-26		
Oakfield.....		3.99		25-26		
Palmyra.....		4.50		25-26		
Paris.....		3.68		25		
Phillipsburg.....					1.35	0 30
Poplar Bluff.....					2.95	31
Rea.....					2.95	25-26
Rolla.....					3.92	25-26
Saint Charles b.....					3.86	25-26
Saint Louis (W. B.).....					3.26	25-26
Saint Louis (V. O.).....					3.42	25-26
Sedalia.....					2.96	25-26
Shelbyville.....					3.20	25-26
Steelville.....					3.84	25-26
Steffenville.....					6.00	25-26
Vermont.....					2.98	25-26
Warrenton.....					4.26	25-26
Wellsville.....					5.73	25-26
<i>Montana.</i>						
Camp Poplar River.....					3.00	18-19
<i>Nebraska.</i>						
Franklin.....						1.55
Geneva.....						1 30
Kearney.....						30
Do.....						
Minden.....						
Plattsmouth.....						
Thedford.....						
<i>New Hampshire.</i>						
Brookline.....						3.26
<i>New Jersey.</i>						
Charlotteburg.....						3.16
Oceanic.....						3.24
South Orange.....						2.71
Tenafly.....						3.00
<i>New York.</i>						
Addison.....						2.75
Fort Niagara.....						3.05
New York.....						3.04
Port Jervis.....						2.66
Poughkeepsie.....						2.97
Rochester.....						2.58
Setauket.....						2.60
West Point.....						3.86
<i>North Carolina.</i>						
Bailey.....						2.99
Charlotte.....						3
Columbus.....						1.00
Douglas.....						0 20
Fayetteville.....						3
Flat Rock.....						2.98
Kittyhawk.....						3.02
Lenoir.....						27-28
Oat Ridge.....						3.30
Roxboro.....						2.60
Saxon.....						3.20
Sloan.....						2.78
Southern Pines.....						2.90
Southport.....						2.60
<i>North Dakota.</i>						
Fort Buford.....						4.16
Oakdale.....						3.53
<i>Ohio.</i>						
Bement.....						10.07
Bissell.....						3.75
Camp Dennison.....						6.23
Colebrook.....						2.50
Garretttsville.....						5.76
Harbor.....						2.92
Hillhouse.....						5.60
Lordstown.....						16-17
New Holland.....						2.56
North Royalton.....						6.12
Orangeville.....						3.05
Sharon Center.....						2.93
Strongsville.....						1.97
Warren.....						6.67
Wheeler.....						10.47
Zanesville.....						2.92
<i>Pennsylvania.</i>						
Drifton.....						3.10
Dyberry.....						1.25
Erie.....						0 30
Girardville.....						23
Lancaster.....						3.33
						3-4

Table of excessive precipitation—Continued.

State and station.	Monthly rainfall in inches, or more.	Rainfall 2½ inches, or more, in 24 hours.		Rainfall of 1 inch or more, in one hour.	
		Amt.	Day.	Amt.	Time.
<i>Pennsylvania—Continued.</i>					
Lebanon.....	Inches.	3-71	3-4	Inches	h.m.
Le Roy.....		3-16	4		
Lock Haven.....		2-65	3-4		
Meadville.....		3-32	16		
Pittsburg.....				1-01	0 35
Saegerstown.....		3-20	16		
Selins Grove.....		3-62	3-4		
<i>Rhode Island.</i>					
Providence a.....	2-71	3-4			
<i>South Carolina.</i>					
Allendale.....				2-24	1 05
Batesburg.....		2-84	1-2		
<i>South Dakota.</i>					
Alexandria.....		3-61	21	3-15	0 45
Blandreau.....		2-95	21		
Howard.....		2-48	21		
Salem.....		4-70	21		
<i>Tennessee.</i>					
Arlington.....	10-16	2-75	27		
Charleston.....		2-76	3		
Chattanooga.....		2-52	2-3		
Covington a.....	10-83	3-25	26-27		
Covington b.....		3-25	26-27		
Florence Station.....	10-03	2-85	31		
Greeneville.....		2-72	2-3		
Jackson.....		3-00	31		
Lynnville.....	14-69	6-51	26-31	6-51	7 00
Memphis.....	13-34	7-50	26-28	1-00	0 34
Milan.....	10-27	4-50	31		
Nunnelly.....		5-02	31		
Strawberry Plains.....		2-50	2-3		
Wier.....		3-80	31		
<i>Texas.</i>					
Abilene.....		3-60	10-11		
Arlington.....		4-40	14		
College Station.....		6-85	10-11		
Corsicana a.....				1-50	1 00
Corsicana b.....		2-90	6-7		
Dallas.....		2-55	14		
Fort Hancock.....		5-09	11-12		
Gainesville.....		2-50	6	2-50	1 40
Grape Vine.....		2-91	7		
Hidalgo.....		2-54	1		
Longview.....		4-35	7-8		
Mesquite.....		2-97	14	2-25	1 00
Mountain Spring.....				1-54	1 00
Nacogdoches.....					
Rio Grande City.....		3-68	6-7	1-55	1 30
Sulphur Springs.....				1-00	1 00
Tyler.....		3-10	6-7		
<i>Virginia.</i>					
Alexandria.....		2-75	3-4		
Ashland.....		5-70	3		
Irwin.....		2-54	3		
Stanardsville.....		5-27	2-3	2-00	1 30
Staunton.....		2-61	3		

Received too late for publication in April, 1893.

	<i>Alabama</i>					
<i>Wetumpka</i>			2.75			
	<i>Missouri</i>					
<i>Annapolis</i>		10.13				
	<i>Oregon</i>					
<i>Bandon</i>	13.36					
<i>Cascade Locks</i>		13.81				
<i>Gardiner</i>		10.22				
<i>Glenora</i>		21.75	6.46	1-2		
<i>Do.</i>			3.02		20	
<i>Langlois</i>	14.35					
<i>Toledo</i>	11.29					

*April 30. †April 30-May 31

†April 30-May 31

MAXIMUM RAINFALL IN ONE HOUR OR LESS.

The following table is a record of the heaviest rainfall during May, 1893, for periods of five and ten minutes and one hour, as reported by regular stations of the Weather Bureau furnished with self-registering gauges:

Maximum rainfall in one hour or less.

Maximum rainfall in one hour or less—Continued.

Station.	Maximum fall in—					
	5 min.	Date.	10 min.	Date.	1 hour.	Date.
Chicago, Ill.	Inch.		Inch.		Inch.	
0.08	23	0.11	23	0.32	23	
Cleveland, Ohio *	0.32	31	0.55	31	0.86	31
Denver, Colo.	0.05	27	0.06	27	0.20	27
Detroit, Mich.	0.05	12	0.10	12	0.15	23
Dodge City, Kans.	0.10	14	0.15	14	0.20	14
Duluth, Minn.	0.03	22	0.05	22	0.22	22
Eastport, Me.	0.03	18	0.05	18	0.13	18
Galveston, Tex.	0.20	1	0.32	1	0.46	8
Indianapolis, Ind.	0.17	26	0.25	26	0.32	26
Jacksonville, Fla.	0.50	24	0.77	24	1.73	24
Jupiter, Fla.	0.45	30	0.85	30	1.15	30
Kansas City, Mo.	0.27	25	0.45	25	0.98	25
Key West, Fla.	0.23	17	0.33	17	0.76	17
Marquette, Mich.	0.20	23	0.25	23	0.40	23
Memphis, Tenn. *	0.30	27, 31	0.45	27, 31	1.00	27
Milwaukee, Wis.	0.20	11	0.25	11	0.35	11
New Orleans, La. *	0.20	2	0.30	2	0.75	2
New York, N. Y. *						
Norfolk, Va.	0.25	27	0.36	27	0.63	27
Omaha, Nebr.	0.25	10	0.30	10	0.80	10
Philadelphia, Pa.	0.09	16	0.13	16	0.23	23
Pittsburg, Pa. *						
Portland, Oregon	0.03	7	0.05	7	0.20	7
Saint Louis, Mo.	0.28	26	0.30	26	0.70	26
Saint Paul, Minn.	0.11	22	0.17	22	0.54	22
Salt Lake City, Utah	0.02	25	0.04	25	0.12	25
San Diego, Cal.	0.04	9	0.06	9	0.12	9
San Francisco, Cal. †						
Savannah, Ga.	0.22	27	0.30	27	0.40	27
Tampa, Fla. *	0.30	16	0.45	16	0.75	16
Washington, D. C.	0.15	27	0.22	27	0.40	3
Wilmington, N. C.	0.12	29	0.26	29	0.50	29

* Record incomplete.

~~† Self-register out of order.~~

‡ Less than 0.05 in 1 hour.

The following tables show the number of years for which monthly precipitation to equal or exceed 10.00 inches, daily precipitation to equal or exceed 2.50 inches, and hourly precipitation to equal or exceed 1.00 inch has been reported in the several states and territories for May during the last 23 years:

Excessive monthly precipitation

State.	No. Years noted.	State.	No. Years noted.
Texas	14	Massachusetts	2
Kansas	10	Montana	2
Iowa	7	New Hampshire	2
Arkansas	7	New Jersey	2
Louisiana	7	New York	2
Missouri	7	Pennsylvania	2
North Carolina	6	Wisconsin	2
Nebraska	5	Kentucky	2
Mississippi	5	California	2
Florida	4	Minnesota	2
Georgia	4	Washington	1
South Carolina	4	Arizona	0
Virginia	4	Connecticut	0
Alabama	4	Delaware	0
Illinois	3	Idaho	0
Michigan	3	Indian Territory	0
Ohio	3	Nevada	0
Tennessee	3	New Mexico	0
Colorado	2	Oregon	0
The Dakotas	2	Rhode Island	0
District of Columbia	2	Utah	0
Indiana	2	Vermont	0
Maine	2	West Virginia	0
Maryland	2	Wyoming	0

Excessive daily precipitation (24 hours).

Kansas	19	Missouri	7
Texas	17	Virginia	7
Alabama	13	Colorado	6
Illinois	13	Pennsylvania	6
North Carolina	13	Minnesota	5
South Carolina	13	Massachusetts	5
Florida	12	Ohio	5
Iowa	11	Kentucky	4
Mississippi	11	Rhode Island	4
Indian Territory	10	Montana	3
Louisiana	10	Wisconsin	3
Nebraska	10	Connecticut	3
Arkansas	9	New Jersey	3
The Dakotas	9	New York	3
Georgia	9	District of Columbia	3
Tennessee	9	Maine	2
Maryland	8	California	1
Michigan	8	Delaware	1
Indiana	7	Oregon	1

Excessive daily precipitation (24 hours)—Continued.

State.	No. years noted.	State.	No. years noted.
Vermont	I	New Mexico	
New Hampshire	I	Utah	
Arizona	O	Washington	
Idaho	O	West Virginia	
Nevada	O	Wyoming	

Excessive hourly precipitation.

Kansas	17	Missouri	
Texas	13	Massachusetts	
Iowa	11	Michigan	
Nebraska	10	Minnesota	
Florida	9	Arizona	
North Carolina	9	Montana	
South Carolina	9	Oregon	
Pennsylvania	7	Vermont	
Tennessee	7	California	
Georgia	7	Connecticut	
Maryland	7	Delaware	
Ohio	6	District of Columbia	
Indiana	5	Maine	
Illinois	4	Nevada	
The Dakotas	4	New Hampshire	
Wisconsin	4	New Jersey	
Alabama	4	New Mexico	
Arkansas	4	New York	
Mississippi	4	Rhode Island	
Virginia	4	Utah	
Indian Territory	3	Washington	
Louisiana	3	West Virginia	
Colorado	3	Wyoming	
Kentucky	3		

The following tables give exceptionally heavy monthly, daily, and hourly precipitation reported for May during the last 23 years:

Monthly.

Station and state.	Am't.	Year.	Station and state.	Am't.	Year.
	Inches.			Inches.	
Melissa, Tex.	34.85	1881	Melissa, Tex.	21.95	1873
Weatherford, Tex.	27.94?	1884			

Daily (24 hours).

Station and state.	Amount.	Date	Station and state.	Amount.	Date
	Inches.			Inches.	
Helena, Ark, a	10.80	27-28, 1893	Simpsonville, S.C.	6.02	25-26, 1890
Wheeler, Ohio	10.47	16-18, 1893	Glenwood, Iowa	6.00	29, 1878
Columbus, Ga.	9.92	22, 1880	West Almond, N. Y.	6.00	31, 1889
Helena, Ark, b	9.85	26-28, 1893	Selins Grove, Pa.	6.00	31, 1889
Fort Wallace, Kans.	9.30	22-23, 1874	Steffenville, Mo.	6.00	25-26, 1893
Durham, Ark.	9.28	1, 1876	Greenville, Ala.	5.85	30, 1888
New Frankford, Mo.	9.00	28-29, 1889	Emporia, Pa.	5.85	31, 1889
Grampian, Pa.	8.37	31, 1889	Tuscarora, Pa.	5.81	30-31, 1889
Clarksville, Tex.	8.25	10-11, 1874	Waynesboro, Miss. a	5.80	6, 1893
Hillhouse, Ohio	8.06	16-17, 1893	Colebrook, Ohio	5.76	15-17, 1893
Weatherford, Tex.	8.00?	21, 1884	Batesville, Miss.	5.75	27, 1893
Blue Knob, Pa.	7.90	30-31, 1889	New Boston, Mo.	5.75	25-26, 1893
Lonoie, Ark.	7.88	27-28, 1893	Wellsville, Mo.	5.73	25-26, 1893
Brinkley, Ark.	7.65	26-28, 1893	Dadeville, Mo.	5.72	28, 1893
Okolona, Miss.	7.50	4, 1897	Ashland, Va.	5.70	3, 1893
Shreveport, La.	7.37	6, 1876	Greensburg, Ala.	5.67	1, 1893
Memphis, Tenn.	7.36	26-28, 1893	Mobile, Ala.	5.62	29, 1883
McConnellsburg, Pa.	7.08	31, 1889	Gainesville, Tex.	5.61	31, 1893
Osceola, Ark.	7.04	31, 1893	Harbor, Ohio	5.60	16-17, 1893
Columbia, S.C.	6.90	26, 1886	Upper Mattolle, Cal.	5.59	5-6, 1891
Hypoluxo, Fla.	6.89	29-30, 1890	Mayport, Fla.	5.53	3-4, 1880
College Station, Tex.	6.85	10-11, 1893	Starbunkburg, S.C.	5.53	19, 1886
Charlesville, Pa.	6.71	31, 1889	Hot Springs, Ark.	5.52	27-28, 1888
Denver, Colo.	6.70	21-22, 1876	Mexico, Mo.	5.52	25-26, 1893
Forrest, Ark.	6.70	26-28, 1893	Ellsworth, N. C.	5.50	22, 1884
Strongsville, Ohio	6.67	16-17, 1893	Clarksville, Tex.	5.50	21, 1878
Saint Marys, Ga.	6.60	27, 1887	Chero, Tex.	5.50	29, 1887
Petersburg, Pa.	6.60	31, 1889	Houston, Tex.	5.50	3, 1884
Hallettsville, Tex.	6.54	16, 1892	Friendship, N. Y.	5.50	30-31, 1880
Boerne, Tex.	6.52	26, 1880	Smethport, Pa.	5.50	31, 1889
Lynny, Tenn.	6.51	31, 1893	Alum Springs, Va.	5.50	30-31, 1889
Charleston, S.C.	6.38	1-2, 1882	Shreveport, La.	5.45	21, 1884
Little Rock, Ark.	6.33	9-10, 1882	Osage, Iowa	5.40	23-24, 1880
Tallahassee, Fla.	6.30	26, 1888	Coudersport, Pa.	5.40	31, 1889
Bolar, Va.	6.25	30-31, 1889	Barnegat, N. J.	5.39	31, 1878
Bee Branch, Ark.	6.25	27-28, 1893	Mountain Spring, Tex.	5.38	31, 1892
Bissell, Ohio	6.23	16-17, 1893	Little Rock, Ark.	5.37	26-28, 1893
Grand Coteau, La.	6.20	1, 1893	Vicksburg, Miss.	5.36	23-24, 1878
Harrisburg, Pa.	6.16	31, 1883	Mount Willing, Ala.	5.31	1-2, 1893
Fort Randall, S. Dak.	6.13	15, 1872	Stanardsville, Va.	5.27	2-3, 1893
North Royalton, Ohio	6.12	17-18, 1893	Quincy, Ill.	5.25	25-26, 1893
Holly Springs, Miss.	6.10	26-28, 1893	Frederick, Md.	5.25	31, 1880
Live Oak, Fla.	6.08	4-5, 1890	Galveston, Tex.	5.24	27-28, 1874
Wauseon, Ohio	6.04	29-30, 1889	Dale Enterprise, Va.	5.24	30-31, 1889
Weldon, N.C.	6.03	10, 1887			

Excessive daily precipitation—Continued.

Station and state.	Amount.	Date	Station and state.	Amount.	Date
	Inches.			Inches.	
Luling, La.	5.20	24, 1890	Lumberton, N.C.	5.07	26-27, 1890
Eagles Mere, Pa.	5.17	31, 1889	Odado Peak, Tex.	5.05	1, 1890
Fort Snelling, Minn.	5.12	31, 1877	Ellinwood, Kans.	5.03	17-18, 1877
Anderson, S.C.	5.12	19, 1886	Nunnelly, Tenn.	5.02	31, 1893
Helena, Ark.	5.12	10, 1882	Council Bluffs, Iowa	5.00	31, 1875
Hollidaysburg, Pa.	5.12	31, 1889	Emory Grove, Md.	5.00	15, 1879
Franklin, Ky.	5.12	31, 1893	Fort Niobrara, Nebr.	5.00	26, 1888
New Hartford, Mo.	5.11	25-26, 1893	Palestine, Tex.	5.00	2-3, 1884
Centerville, Mo.	5.10	13-14, 1892	Santeet, Nebr.	5.00	27, 1875
Fort Hancock, Tex.	5.09	11-12, 1893	Columbia, La.	5.00	13, 1890
Atwood, Ill.	5.08	25-26, 1893			

One hour and less.

Station and state.	Amount.	Time.	Station and state.	Amount.	Time.
	Inches.	h. m.		Inches.	h. m.
Indianapolis, Ind.	0.55	0.05			
Jacksonville, Fla.	0.50	0.05			
Jupiter, Fla.	0.50	0.05			
Detroit, Mich.	0.48	0.05			
Dodge City, Kans.	0.47	0.05			
Jupiter, Fla.	0.45	0.05			
Kansas City, Mo.	0.45	0.05			
Galveston, Tex.	0.43	0.05			
Norfolk, Va.	0.37	0.05			
Jupiter, Fla.	0.35	0.05			
Savannah, Ga.	0.35	0.05			
Do	0.35	0.05			
Cleveland, Ohio	0.32	0.05			
Do	0.32	0.05			
New Orleans, La.	0.30	0.05			
Jupiter, Fla.	0.30	0.05			
Memphis, Tenn.	0.30	0.05			
Do	0.30	0.05			
Tampa, Fla.	0.30	0.05			
Kansas City, Mo.	0.30	0.05			
Memphis, Tenn.	0.30	0.05			
San Francisco, Cal.	0.28	0.05			
Chicago, Ill.	0.28	0.05			
Saint Louis, Mo.	0.28	0.05			
Jacksonville, Fla.	0.27	0.05			
Norfolk, Va.	0.27	0.05			
Detroit, Mich.	0.25	0.05			
Saint Louis, Mo.	0.25	0.05			
Washington, D. C.	0.25	0.05			
Norfolk, Va.	0.25	0.05			
Omaha, Nebr.	0.25	0.10			
Forestburg, Tex.	1.41	0.10			
Mount Ida, Ark.	1.20	0.10			
Davenport, Iowa	0.50	0.10			
Oklahoma City, Okla.	1.75	0.15			
Coatesville, Pa.	1.24	0.15			
Jupiter, Fla.	1.15	0.15			
Toledo, Ohio	1.10	0.15			
La Crosse, Wis.	1.04	0.15			
Charlotte, N. C.	1.32	0.16			
Charleston, S.C.	1.08	0.17			
Cumberland, Md. a	1.69	0.20			
Mobile, Ala.	1.64	0.20			
Fort Riley, Kans.	1.50	0.20			
Cincinnati, Ohio	1.50	0.20			
Charlotte, N. C.	1.60	0.22			
Philadelphia, Pa.	1.60	0.22			
Savannah, Ga.	1.60	0.22			
Charlotte, N. C.	1.67	0.23			
Palestine, Tex.	1.67	0.23			
Concordia, Kans.	1.32	0.24			
College Hill, Ohio	2.38	0.30			
Marshall, Mo.	2.08	0.30			
Mountain Spring, Tex.	2.00	0.30			
Smithfield, Va.	1.80	0.36			
Shields, Kans.	1.75	0.36			
Plant City, Fla.	1.00	0.20			
Cumberland, Md. b	1.90	0.35			
Alexandria, S. Dak.	1.75	0.38			
Fort Riley, Kans.	3.15	0.45			
Austin, Tex.	2.70	0.45			
Hot Springs, Ark.	2.50	0.48			
McCauleyland, Iowa.	3.00	0.50			
Rio Grande City, Tex.	3.90	1.00			
Bolar, Va.	3.75	1.00			
	3.00	1.00			

MONTHLY SNOWFALL (in inches and tenths).

Chart V shows the depth of snowfall reported for the month. The monthly snowfall was heaviest in the mountains of Colorado and northeastern California, where the depth exceeded 20; at Fort Washakie, Wyo., Cokedale, Mont., Paris, Idaho, Barron, Wis., and Marquette, Mich., more than 10 fell. No snow was reported in New England. In the middle Atlantic states trace of snow fell in Maryland on the 4th. Trace of snow was reported at Rochester, N. Y., on the 6th and 23d.

No snow fell in the Ohio Valley, except in western Pennsylvania, nor in the Mississippi Valley south of northeastern Iowa. Snowfall west of the Mississippi was confined to the mountain regions and the extreme northwest.

On the 15th and at the close of the month snow was reported only in the mountains of Colorado.

Monthly snowfall was reported as follows: *California*.—Summit, 21; Cisco, 16; Truckee, 13.5; Boca, 9; Emigrant Gap, 6; Fort Bidwell, 3. *Colorado*.—Breckenridge, 28.8; Kirk, 26; Climax, 24; Ward District, 23.5; Pikes Peak, 22.4; Gold Hill and Saint Cloud, 18; Stamford, 17.5; Wallet, 14; Moraine, 13.5; Red Cliff, 13.3; Pagoda (near), 12; Como (near) and Cumbres, 10; Lay, 9.8; Steamboat Spring, 9.7; Smoky Hill Mine, 9; Denver, 8.9; San Luis, 8.1; Abbott, Le Roy, and Monte Vista (*a*), 8; Husted, Monte Vista (*b*), and Twin Lakes, 6; Brush, River Bend, and Scissors, 5; Colorado Springs, 4.2; Yuma, 4; Agate, Gaynor, Kit Carson, La Jara, and Watkins, 3; Bennet, 2.5; Cheyenne Wells and Garnett, 2; Rico, 1.8; Fort Collins and Lavender, 1; East Dale, 0.5; Montrose, 0.1; Arboles, Deer Trail, Sheridan Lake, and Zuck, trace.

Idaho.—Paris, 10; Bonanza City, 4; Lake, 3.5; American Falls, 1; Idaho Falls, trace. *Iowa*.—Grinnell and Newton, trace. *Maine*.—Calais, trace. *Maryland*.—Baltimore, Glyndon, Oakland, and Sunnyside, trace. *Michigan*.—Marquette, 11.6; Lathrop, 2; Calumet, 1.2; Boon, Harbor Springs, and Sault Ste. Marie, trace. *Minnesota*.—Caledonia, 4; Maple Plain, 1.3; Alma City, Rochester, and Rolling Green, 1; Duluth, Fort Ripley, Minneapolis, Red Wing, Saint Charles, Saint Paul, and Sandy Lake Dam, trace. *Montana*.—Cokedale, 17; Virginia City, 14; Corbin and Hogan, 4; Bozeman and Deer Lodge City, 2.5; Helena, 0.2. *Nevada*.—Stofiel, 7; Wells, 5.5; Empire Ranch and Verdi, 5; Toano, 4; Austin, South Camp, and Sunnyside, 2; Fenelon and Pioche, 1; Palmetto and Virginia City, 0.8; Tuscarora, 0.5; Wabuska, 0.2; Belmont, Candelaria, Carson City, Cranes Ranch, Halleck, Hot Springs, Tybo, and Winnemucca, trace.

New Mexico.—Chama, 7; Santa Fe, 0.6. *New York*.—Malone, 1; Rochester and Ampersand, trace. *North Dakota*.—Oakdale, 5; Fort Buford, 2; Yule, 1; Grand Forks, Saint Johns, and Sykeston, trace. *Oregon*.—Siskiyou, 3; Crook, 2.5. *Pennsylvania*.—Pittsburg, trace. *South Dakota*.—Cross, 4.2; Spearfish, 2; Bear Valley, 1; Rapid City, 0.2; Fort Meade and Whitewood, trace. *Utah*.—Thistle, 0.5; Grouse Creek, Loa, Promontory, and Singletree, trace. *Washington*.—Rosalia, 3; Ferry, trace. *Wisconsin*.—Barron, 10; Shell Lake, 3.5; Columbus, 3; Meadow Valley and Viroqua, 2.5; Bayfield, Beaver Dam, Black River Falls, Florence, Hillsboro, and Neillsville, 2; Hayward, 1.5; Medford (*a*), Reedsburg, 1; Watertown, 0.8; Koepenick, Milwaukee, and Oconomowoc, 0.5; La Crosse, 0.1; Medford (*b*), New Holstein, and Shawano, trace. *Wyoming*.—Fort Washakie, 18.9; Lander, 6.5; Fort Yellowstone, 4.7; Fort McKinney, 4.5; Evanston, 4.1; Big Horn Ranch and Cheyenne, 3.5; Camp Pilot Butte, trace.

HAIL.

Description of the more severe hailstorms reported for the month is given under "Local storms."

Hail was reported as follows: 1st, Alabama, Georgia, Iowa, Kansas, Louisiana, Mississippi, Pennsylvania, South Dakota, and Texas. 2d, Georgia, Idaho, Kansas, Louisiana, Minnesota, Nevada, Oregon, and South Dakota. 3d, Colorado, Illinois, Nevada, North Carolina, Oregon, South Carolina, Utah, and Wisconsin. 4th, Kansas, Maryland, Missouri, and Nebraska. 5th, Indiana, Iowa, Kansas, Kentucky, Maryland, Michigan, Missouri, Nevada, Ohio, Utah, West Virginia, and Wisconsin. 6th, Alabama, Arkansas, Georgia, Kansas, Louisiana, Maine, Mississippi, Tennessee, Texas, Utah, Vermont, and Virginia. 7th, Colorado, Iowa, and Texas.

8th, Alabama, California, Colorado, Mississippi, and Washington. 9th, Kansas and Texas. 10th, Iowa, Kansas, Minnesota, Nebraska, Oregon, South Dakota, Texas, and Wisconsin. 11th, Arizona, Iowa, Michigan, Nebraska, South Dakota, and Wisconsin. 12th, Arizona, Kentucky, Michigan, and Ohio. 13th, Arizona, Colorado, and Wisconsin. 14th, Indiana, Iowa, Michigan, Missouri, and Wisconsin. 15th, Alabama, Colorado, Ohio, Oregon, and Pennsylvania. 16th, California, Colorado, Montana, Nevada, and Oregon. 17th, California, Montana, Nevada, Ohio, and Oregon. 18th, California, North Dakota, South Dakota, Utah, and Wyoming.

19th, Missouri, North Carolina, and North Dakota. 20th, California, Kansas, Maryland, Missouri, Nevada, Ohio, Oregon, Pennsylvania, Washington, and West Virginia. 21st, Colorado, Illinois, Indiana, Kansas, Maryland, Minnesota, Missouri, Nebraska, Ohio, South Dakota, Utah, Virginia, West Virginia, and Wisconsin. 22d, Colorado, Iowa, Michigan, Minnesota, Nebraska, Pennsylvania, South Dakota, Washington, and Wisconsin. 23d, Indiana, Kentucky, Massachusetts, Michigan, New Jersey, New York, Ohio, Pennsylvania, Washington, and Wisconsin. 24th, Kansas, Minnesota, Nevada, and Oregon. 25th, Idaho, Iowa, Kansas, Missouri, and Oregon.

26th, Colorado, Illinois, Indiana, Iowa, Kentucky, Maine, Missouri, Nevada, Tennessee, and Texas. 27th, Alabama, Arkansas, Colorado, Massachusetts, Minnesota, Mississippi, North Carolina, Oklahoma, South Carolina, and Texas. 28th, Arkansas, Georgia, Indian Territory, Iowa, Louisiana, North Carolina, North Dakota, Oklahoma, and South Carolina. 29th, Indiana, Kansas, Michigan, Nebraska, South Carolina, and Wisconsin. 30th, Arkansas, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Missouri, Nebraska, Ohio, Oregon, and Pennsylvania. 31st, Alabama, Arkansas, Illinois, Indiana, Iowa, Louisiana, Mississippi, Missouri, New York, North Dakota, and Tennessee.

SLEET.

Sleet was reported as follows: 1st, Nebraska and Wisconsin. 3d, North Carolina and Pennsylvania. 4th, Minnesota, New Hampshire, Utah, and Wisconsin. 5th, Minnesota, Nevada, and Utah. 6th, Colorado and Kansas. 7th, Colorado. 13th, Colorado and Texas. 18th, Utah. 19th, North Dakota. 20th, Montana. 21st, Colorado, South Dakota, and Utah. 22d, Colorado, Kansas, Minnesota, North Dakota, and South Dakota. 23d, Nevada, Utah, and Wisconsin. 24th, Nevada. 25th, South Dakota and Utah. 28th, Colorado.

WINDS.

The prevailing winds in May, 1893, are shown on Chart II by arrows flying with the wind. In the Atlantic coast states the winds were generally from south to west; over the Florida Peninsula, the Gulf States, and the northern plateau region, from southeast to southwest; in the Ohio Valley and Ten-

nessee, over the middle plateau region, and along the Pacific coast, from southwest to northwest; in the upper lake region and the upper Mississippi and Missouri valleys, from northwest to northeast; on the southeast slope of the Rocky Mountains, from east to south; and on the northeast and middle-eastern slopes of the Rocky Mountains, variable.